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ON THE DECORATIVE TREATMENT OF CAST-IRON.

There is no metal, the use of which has so rapidly and extensively increased, nor any that has become so indispensable at the present time, as cast-iron; it is one which not merely answers very many technical necessities, but tends more and more to satisfy the æsthetic sentiment, by a graceful development of form in decoration.

The artistic treatment of cast-iron is a specialty of our own time, without any examples even in the most flourishing periods of Art-Industry. But we learn from numerous objects of those times which may serve for models, that the decorative treatment must be most closely in agreement with the qualities of the metal and also dependent on the manufacturing process imposed by the peculiarities of the raw material, and therefore, if cast-iron is to be judiciously treated, these two principles must be kept in view and adhered to.

The properties of cast-iron are by no means favorable either for technical or artistic purposes; it does not lend itself to lightness of construction, or to elegant decoration in general, being neither malleable nor ductile, nor is it capable of soldering or welding, but admits of connexion only by screws and rivets while its comparative brittleness requires a greater thickness, and the application of supports and flanges. On the other hand its artistic treatment is limited almost entirely to the production of a good and conformable model, and must be finished off with due regard to a pleasing effect of color and the prevention of rust.

But, notwithstanding these unfavorable properties, cast-iron is largely employed not only for machinery and similar objects on which ornament is unessential and even superfluous, but also for many productions in which form and decoration are not only essential but are frequently the chief things in view, while the cheapness of the material and increasing needs of all kinds lead as to expect its much more extensive employment. If will come more and more into use not only in architecture and for objects of daily domestic necessity but also for ornamental purposes, and as even the smallest articles of luxury can be made of it, it will, being a cheap substitute for bronze, become no despicable rival to zinc.

An immense number of objects, both of utility and luxury, exhibit an artistic treatment, in many cases of great excellence: a large majority of them however are pervaded by one fault, a superabundance of ornament, which, covering too large a surface in proportion to the plainer parts, disturbs the impression of quiet repose and artistic harmony. The effect of the most ornamental details and even of their most graceful arrangement will be weakened and disturbed if they are not separated by plain surfaces of some extent, simple profiles, and great bold lines, offering some repose to the eye and relieving the principal features of the work, all of which must be designed with careful attention to the proportions of the object itself and the place it is to occupy. The first principle of decorative ornament is that the spectator should have a full and distinct view of it as soon as he is sufficiently near to comprehend the whole at one glance. It must be considered a great fault, if at that distance, the ornaments which take up so much of the whole space should present to the eye an indistinct chaos of scrolls,

tendrils and foliage, and if no clear idea of the course of the lines and the distribution of the parts is to be obtained except at a very close proximity. An incorrect application of ornament of this nature may often produce an effect the very opposite to that of the model, especially in pierced ornaments in which the lighter or darker colors of the intervening parts come into consideration. An especial fault of pierced ornaments in larger objects is their conception and execution in so-called filagree work. Their distribution is too monotonous, they are without any principal features or dominant lines, the background though visible is little attended to, so that they frequently produce the effect of a rough grained surface, instead of imparting to it a life and spirit of its own by beautiful and appropriate decoration.

What we have said above refers chiefly to the contour or profile, but it may be equally applied to those ornamental parts which are in relief. With many objects in cast-iron a very flat relief is necessary, so that with these a diaper or pattern-like arrangement of the ornaments will be the most suitable, regard being had to the above observations on the distribution of the spaces, and the rythmical arrangement of the main lines. A great number of objects, in virtue of their destination, not only allow the use of high and bold relief, but it is even absolutely necessary from their position in open and vast spaces. But in the latter case, as with the flat surfaces, the alternation of greater lines, the effective distribution of light and shade must be carefully attended to or the delicate effect of the relief will be diminished if not destroyed. The nature of cast-iron however is such that in the raised parts disagreeable edges are often unavoidable, thus hindering the deep and distinct effect of shade that ought to be produced by the relief. But these edges and their ingenious effect may be avoided or at least diminished by an arrangement which will permit the separate mounting or addition of the most raised parts, of single flowers, figures, etc., by means of screws or rivets.

In detached figures, columns, candelabra, statues, etc., the necessity of producing and putting together the moulds of several parts, allows single projecting parts to be but lightly fixed in the model and in such a way that they are not taken out from the mould with the main object, but by themselves, so that a relief of great boldness may be had without being compelled to have recourse to false cores which process requires a skillful workman if the cast is to come out seamless and clean.

As in other branches of Art-Industry, so also in the treatment of cast-iron, the artist who desires really to produce an effective work, must be familiar with the manipulations of moulding and casting, in order to be able to embody his ideas in a manageable model, without relying on any extraordinary amount of skill in the workman; for although it is by no means impossible to obtain a satisfactory cast from any design or model, still it must be considered the special task of the artist to keep in view the greatest facility of execution, and the more so if the objects are intended for general use, and therefore demand a quick and cheap manufacture. This is especially the case with cast-iron productions in which the value of the material is of little importance, where the objects are small and where the market price depends entirely on the amount of labor bestowed on it, which for this reason should be kept within the narrowest possible limits.

If, as we have hitherto supposed, cast-iron is used solely, or at least principally, its artistic treatment is limited by its peculiar qualities. But if it is used in combination with other metallic substances, and especially with wrought-iron as its nearest relation, the artistic treatment has at once a wider field inasmuch as the advantages of a softer and more extensible metal are obtained so that the qualities of one are compensated for and perfected by those of the other. If in this case cast-iron is used for flowers, foliage and similar ornaments, which formerly could only be produced by the hammer and forge, it will be a cheap and easily obtained substitute, the effect of which, if judiciously employed, will be but little inferior to that of wrought-iron. The increased demands on our industrial establishments for rapid and cheap execution have naturally decreased the quantity of wrought-iron productions, and cast-iron has supplanted them by most fully answering the required conditions.

The next requisite, after the correct treatment of the design and model, and the fixing of the detached parts, all of which exercise much influence on the beauty of the cast, is the treatment of the surface so as to prevent rust and to give it a more pleasing appearance than is presented by the unseemly color of the iron.

The most natural and correct method would be to leave the surface of the cast-iron in its natural state, and to protect it from rust merely by a thin coat of varnish, or to employ some processes which are peculiarly adapted to the properties of cast-iron, or of metals in general. In the former case, however, it is to be observed that the iron color is somewhat unseemly, and little in harmony with our taste, or with what surrounds the work, so that it is usual, though perhaps injudicious, to give it the appearance of a nobler metal by means of some covering, the color of which may also produce a more lively and warmer effect. This is usually effected by a coating of oil or paint, to which, while drying, ground

bronze is applied on the raised parts, so as to give them somewhat of the appearance of real bronze. But the most carefully applied paint will always more or less destroy the sharpness and distinctness of the forms, will impair the beauty of the cast, and never obtain the peculiar lustre of the real metal; besides which ground bronze is little durable, as it will in a short time get rusty, especially in the open air, and thus entirely lose its metallic gloss.

As the best way of meeting these difficulties, it has frequently been attempted to coat the surface of the cast-iron with real metal by the galvanic process, but it was soon found that this could not be done in the same simple and easy manner as with other metals, and that no intimate combination of the two different metals was possible, probably on account of the great quantity of carbon contained in the cast-iron. A rather successful galvanising process on a large scale was effected on the gas candelabra of the city of Paris, but even in these, when damaged, the coating of copper would come off the surface of the cast-iron like a thin sheet of metal, which circumstance doubtless was the reason why it was laid on to the considerable thickness of nearly half a millimètre.

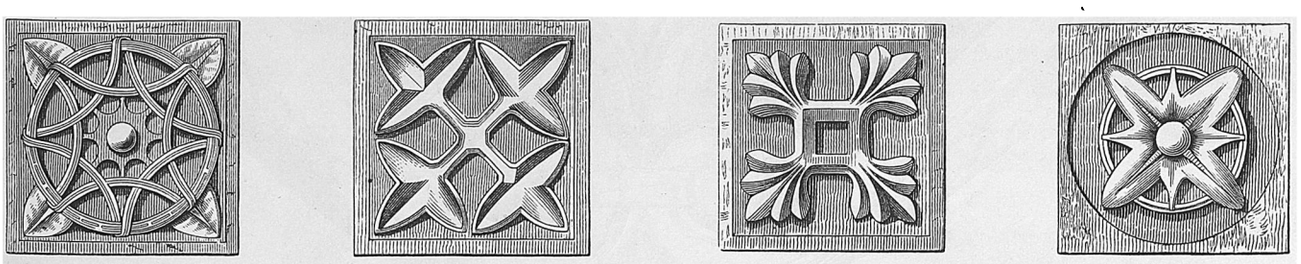
The Paris experiment proves that the galvanic process may be applied to cast-iron notwithstanding the peculiarities we have mentioned, and that it is of practical value. It must however be observed, that it can only be advantageously used for works on which no detached figures, flowers, etc., are afterwards to be mounted, by which process the metal coating might be injured; every such spot would open the door to the destructive influences of rust, and consequently cause the metal layer to peel off.

Should, however, the galvanic process ever be brought to such perfection as to produce an intimate combination of the two metals, so that even a thin coating would possess a certain durability, then there would be gained a method of treatment which would leave nothing more to be desired. Then not only could every kind of coating be applied, but in the gilding or silvering process, the dead and polished parts could be so brought out as to produce the full effect of the nobler metals.

The art of adapting enamels to cast-iron for artistic finish will be probably of very limited application, for it can be used with advantage only on flat surfaces of some extent and on objects which are not exposed to any great variations of temperature. Many attempts have been made to enamel the common iron stoves in general use in German houses, but with no successful result, and so at present it is now only used for domestic iron-ware on account of its suitableness to the object.

The most appropriate means of finishing off articles in cast-iron is therefore a galvanic coating of some nobler metal, provided that it practically answers the just demand for durability, and that it may also be applied with little difficulty and expense to larger and more complex objects.

SPECIMENS OF ORNAMENTATION.



No. 1. No. 2. No. 3. No. 4.

Nos. 1—4. From Segovia. Twelfth century. Romanesque Flowers between Consoles supporting Cornice of Door of St. Lorenzo Church.